

What is claimed is:

1. A method for producing nucleoside 5'-phosphate ester, comprising the steps of culturing a bacterium belonging to the genus *Escherichia* having an ability to produce nucleoside 5'-phosphate ester, in which *ushA* gene and *aphA* gene do not function normally, in a medium to produce and accumulate nucleoside 5'-phosphate ester in the medium, and collecting the nucleoside 5'-phosphate ester from the medium.

10 2. The method for producing nucleoside 5'-phosphate ester according to Claim 1, wherein mutations are introduced into the *ushA* gene and the *aphA* gene or these genes are disrupted so that they do not function normally.

15 3. The method for producing nucleoside 5'-phosphate ester according to Claim 1 or 2, wherein the nucleoside 5'-phosphate ester is selected from the group consisting of 5'-inosinic acid or 5'-guanylic acid.

4. A bacterium belonging to the genus *Escherichia* having an ability to produce nucleoside 5'-phosphate ester, in which *ushA* gene and *aphA* gene are disrupted.

20 5. The bacterium belonging to the genus *Escherichia* according to Claim 4, wherein the nucleoside 5'-phosphate ester is selected from the group consisting of 5'-inosinic acid or 5'-guanylic acid.

25 6. A method for searching for a 5'-nucleotidase gene affecting accumulation of nucleoside 5'-phosphate

ester, comprising the steps of:

culturing a parent strain of microorganism and a derivative strain thereof in which a known 5'-nucleotidase is deleted in a minimal medium containing a first nucleoside 5'-phosphate ester as a sole carbon source and a minimal medium containing a second nucleoside 5'-phosphate ester as a sole carbon source to examine expression profiles of genes in the parent strain and the derivative strain,

10 calculating a product of a ratio of expression amounts of each gene in the parent strain and the derivative strain when they are cultured in the medium containing the first nucleoside 5'-phosphate ester as a carbon source and a ratio of expression amounts of each 15 gene in the parent strain and the derivative strain when they are cultured in the medium containing the second nucleoside 5'-phosphate ester as a carbon source,

and selecting one or more genes showing a larger value of the product.

20 7. The method for searching for a 5'-nucleotidase gene according to Claim 6, wherein the first and second nucleoside 5'-phosphate esters are 5'-inosinic acid and 5'-guanylic acid.

25 8. The method for searching for a 5'-nucleotidase gene according to Claim 6 or 7, further comprising the step of selecting a gene that can code for a signal sequence required for transition of a protein into

periplasm from the selected genes.